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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KIM, PAUL	

ART UNIT	PAPER NUMBER
2161	

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/671,938	CHEN ET AL.	
	Examiner	Art Unit	
	Paul Kim	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after t he mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

SAM RIMELL
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the following communication: Original application filed on 29 September 2003.

2. Claims 1-15 are pending. Claims 1, 9, 10, 14, and 15 are independent.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "100" has been used to designate both "an exemplary system" and "a communication network". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

- Figure 6, Reference 607;
- Figure 7, Reference 705; and
- Figure 8, References 802 and 805.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must

be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is directed to the method of monitoring continual range queries against events with no tangible result. See State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. MPEP 2106. "The claimed invention as a whole must accomplish a practical application. That is, it must produce a 'useful, concrete and tangible result'" (emphasis added).

7. While claims 5 and 7 are not rejected on prior art, they are also not indicated as containing allowable subject matter until such time as the rejections under 35 U.S.C. 101 are overcome.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claim 9** is rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al (NPL Document, "Continual Queries for Internet Scale Event-Driven Information Delivery, hereinafter referred to as LIU), published in 1999.

10. **As per independent claim 9**, LIU teaches:

> A method of providing a service of monitoring events or conditions, said method comprising at least one of the following:
>
> providing a service that monitors events against interests of a customer, said service monitoring said events by decomposing continual range queries related to said customer interests with one or predefined virtual constructs, building a query index, and using said query index to match an event with said range queries;
>
> maintaining one or more customer interests expressed as continual range queries for the service that monitors events {See LIU, Section 4.4.2, wherein this reads over "the trigger condition is 'Stock.price(IBM) IncreaseBy% OR Stock.price(Intel) DescreaseBy% 5'"; and "the OpenCQ system may install the database triggers on the data columns or objects of interest"}; and
>
> notifying a subset of said customers whose interests match an event.

Because "providing a service that monitors events against interests of a customer" and "notifying a subset of customers whose interests match an event were optionally recited within the claim, they do not carry any patentable weight.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. **Claims 1-4, 6-7, and 10-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over LIU, in view of Burrows et al (U.S. Patent No. 5,915,251, hereinafter referred to as BURROWS), filed on 3 April 1998, and issued on 22 June 1999.

LIU teaches the limitations of claims 2, 4, 6, 7, and 11-13 for the reasons stated herein.

LIU differs from the claimed invention in that LIU fails to disclose a method comprising building a query index.

13. **As per independent claims 1, 10, and 15**, BURROWS, in combination with LIU, discloses:

A method for monitoring continual range queries against events, said method comprising:

decomposing {See BURROWS, Figure 12; and col. 16, lines 57-67, wherein this reads over "Parsing Queries" and "the query module can represent the query expression . . . as a query tree"; and col. 26, lines 12-19, wherein this reads over "[t]he range '57-70' can be converted to a Boolean search for the range-based metawords in the desired range"} each range query into one or more predefined virtual constructs {See BURROWS, col. 25, lines 34-35, wherein this reads over "[t]he predetermined interval can be used to generate a plurality of sets of subintervals"; and See LIU, Section 4.1, page 11, wherein this reads over "decomposing the trigger condition Tcq into a list of Tcq triplets, each triple consists of a basic update event, an atomic conditional event, and a connector to the next triple in the list"};

building a query index {See BURROWS, col. 2, lines 16-23, wherein this reads over "[t]he range-based values are indexed as follows. There is one word entry for each subinterval which includes the range-based values, and the locations associated with the word entries representing the subintervals are the locations of the range-based portions of information"}; and

using said query index to match an event {See LIU, Section 4.4.2, wherein this reads over "the trigger condition is 'Stock.price(IBM) IncreaseBy% OR Stock.price(Intel) DescreaseBy% 5'"; and "the OpenCQ system may install the database triggers on the data columns or objects of interest"} with said range queries {See BURROWS, col. 8, lines 53-55, wherein this reads over "[t]he SIZE and DATE attributes can be searched using range-based values"; and col. 25, lines 20-21, wherein this reads over "the metawords which are to be used for scanning the index are selected from the 'bottom' level up"}.

Therefore it would have bee obvious to one of ordinary skill in the art at the time the invention was made to modify the invention suggested by LIU by combining it with the invention disclosed by BURROWS. The results of this combination would lead to a method for monitoring continual queries against events wherein range queries (or trigger conditions) are decomposed into virtual constructs (e.g. a list of triplets) and a query index used to match an event with the aforementioned range queries.

One of ordinary skill in the art would have been motivated to do this modification so that a query index may be used to match an event with the continual range queries specified by a user.

14. **As per dependent claim 2**, BURROWS, in combination with LIU, discloses:

The method of claim 1, said building of a query index further comprising: storing an identification of said query {See LIU, Section 3.1, page 7, wherein this reads over "each continual query has a unique entity identifier"} with identification lists associated with said virtual constructs.

15. **As per dependent claim 3**, BURROWS, in combination with LIU, discloses:

The method of claim 1, said building of a query index further comprising:

predefining a set of virtual constructs for each point being monitored {See BURROWS, col. 2, lines 16-23, wherein this reads over "[t]he range-based values are indexed as follows. There is one word entry for each subinterval which includes the range-based values, and the locations associated with the word entries representing the subintervals are the locations of the range-based portions of information"}.

16. **As per dependent claim 4**, BURROWS, in combination with LIU, discloses:

The method of claim 1, said matching of an event with said range queries further comprising: finding all the virtual constructs that cover said event {See LIU, Section 4.1, page 11, wherein this reads over "the condition evaluation manager . . . first select[s] a triplet from the list of Tcq . . [and] if the connector is WHERE, the next triplet in the list will be used as an add-on condition to the basic update event component"}.

17. **As per dependent claim 6**, BURROWS, in combination with LIU, discloses:

The method of claim 4, wherein the size of the set of covering virtual constructs of an event is constant for all the event points {See LIU, Section 2.1, wherein this reads over "temporal events are supported for time-based trigger condition . . . regular time interval (e.g., execute Q every Monday or every two weeks"}.

18. **As per dependent claim 7**, BURROWS, in combination with LIU, discloses, as best understood:

The method of claim 4, wherein gaps between corresponding different covering virtual constructs of all event points are identical {See LIU, Section 2.1, wherein this reads over "temporal events are supported for time-based trigger condition . . . regular time interval (e.g., execute Q every Monday or every two weeks"}.

19. **As per dependent claim 11**, BURROWS, in combination with LIU, discloses:

The system of claim 10, further comprising: at least one sensor to detect occurrence of events {See LIU, Section 4.4.1, wherein this reads over "a temporal event detector"}.

20. **As per dependent claim 12**, BURROWS, in combination with LIU, discloses:

The system of claim 10, further comprising: at least one client input station to permit a client to provide an input query {See LIU, Figure 1, page 20; and Chapter 5, page 19, wherein this reads over "[t]he client tier has four components: (1) The form manager that provides the CQ clients with fill=in forms to register and install their continual queries"}.

21. **As per dependent claim 13**, BURROWS, in combination with LIU, discloses:

The system of claim 10, further comprising: at least one client receiver to permit a client to be notified of occurrence of an event of interest {See LIU, Chapter 5, page 20, wherein this reads over "[t]he results can be returned to the user also by multiple modes, such as by email, fax, phone, bulletin posting, or displaying signals on users' desktop screens"}.

22. **As per independent claim 14**, BURROWS, in combination with LIU discloses:

An apparatus for monitoring continual range queries against events, said apparatus comprising one of:

a query monitor that includes:

a decomposing module that decomposes each range query into one or more predefined virtual constructs {See BURROWS, Figure 12; and col. 16, lines 57-67, wherein this reads over "Parsing Queries" and "the query module can represent the query expression . . . as a query tree"; and col. 26, lines 12-19, wherein this reads over "[t]he range '57-70' can be converted to a Boolean search for the range-based metawords in the desired range"; and See LIU, Section 4.1, page 11, wherein this reads over "decomposing the trigger condition Tcq into a list of Tcq triplets, each triple consists of a basic update event, an atomic conditional event, and a connector to the next triple in the list"};

a query index construction module {See BURROWS, col. 2, lines 16-23, wherein this reads over "[t]he range-based values are indexed as follows. There is one word entry for each subinterval which includes the range-based values, and the locations associated with the word entries representing the subintervals are the locations of the range-based portions of information"}; and

an event matching module that uses said query index to match an event {See LIU, Section 4.4.2, wherein this reads over "the trigger condition is 'Stock.price(IBM) IncreaseBy% OR Stock.price(Intel) DescreaseBy% 5'"; and "the OpenCQ system may install the database triggers on the data columns or objects of interest"} with said range queries {See BURROWS, col. 8, lines 53-55, wherein this reads over "[t]he SIZE and DATE attributes can be searched using range-based values"; and col. 25, lines 20-21, wherein this reads over "the metawords which are to be used for scanning the index are selected from the 'bottom' level up"};

a sensor to detect occurrence of events and provides said occurrence of events into said query monitor {See LIU, Section 4.4.1, wherein this reads over "a temporal event detector"};

a client receiver to permit a client to be notified of occurrence of an event of interest to said client {See LIU, Chapter 5, page 20, wherein this reads over "[t]he results can be returned to the user also by multiple modes, such as by email, fax, phone, bulletin posting, or displaying signals on users' desktop screens"}.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Kim whose telephone number is (571) 272-2737. The examiner can normally be reached on M-F, 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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